So much of this strawman draft document is material which is new to Rule 350 or which has been rearranged relative to the current rule that the current rule is provided in a separate file "350-StruckOut". Much of the material that has been added or changed since the last strawman of December 4.2001, is underlined and/or italicized. Where not confusing, some material deleted since Dec. 4 is shown struck through. **The Index has been omitted from this strawman.** Numbers of Rick Kramer-Howe, this rule's principal drafter: Ph: 602-506-6706; email: rkramer@mail.maricopa.gov -- Fax: 602-506-6179;

The following summary may assist you:

Our rationale is to condense "up front" for easier use, and put the more extensive details in the back, as we are able.

- *the **naming of requirements** for FLOATING ROOF TANK INSPECTION AND EQUIPMENT is in subsections 306 and 307.*
- *the **details** of floating roof tank inspection and equipment requirements are in subsections 505 and 506.*
- ***scheduling and notification requirements** are detailed in section 400.*
- *the **scheduling** of the various floating-roof tank inspections is detailed in subsections 402 and 403.*
- ***notification** requirements for notifying the control officer are in subsection 401.*
- ***recordkeeping** requirements are in subsection 501, including recordkeeping for inspections of floating roof tanks.*
- ***naming of test methods** is in subsections 502 through 503.4.*
- ***monitoring and instrument deployment details** are in subsections 503.5 through 504.4*

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

file: 350-351\350Straw4Apr18

RULE 350
BULK STORAGE OF GASOLINE AND ORGANIC LIQUIDS

SECTION 100 – GENERAL

101 PURPOSE: To limit emissions of volatile organic compounds (VOC) from the bulk storage of gasoline and/or VOC-containing organic liquids and their onsite pipeline-transfer into terminal tanks.

102 APPLICABILITY:

102.1 This rule is applicable to the bulk storage of gasoline any liquid that by mass contains at least 2.0% VOC and has a vapor pressure of at least 1.25 pounds per square inch (psi) (64 mm Hg) at either 100° Fahrenheit (37.8°C) or at its highest temperature of storage.

a. *Absent vapor pressure data for* 100° F, *this rule also applies to such a liquid if it has a vapor pressure exceeding 0.69 psi (36 mm Hg) at 68°F (20° C).* ,,

b. Process tanks *and* storage vessels containing *such liquids (i.e.,* Volatile Organic Liquids, are subject to this rule.

102.2 The provisions of Sections 300, 400, and 500 of this rule are not applicable to *the following* *tanks*:

a. A storage tank of 250 gallons (946 liters) capacity or less.
b. Any tank which dispenses fuel into a fuel tank that is connected to an engine, except for a tank that also serves as a bulk tank.
c. A tank that is both designed *and maintained* to operate at pressures exceeding 30 psig, from which there are no VOC emissions to the atmosphere except *for* releases *incidental to* appropriate activation of safety equipment in emergencies.
d. *Any* tank located at a farm.
e. Tanks addressed by Rule 349, "Pharmaceutical, Cosmetic, and Vitamin Manufacturing Operations".
f. *Delivery vessels not used as stationary bulk storage tanks.*

102.3 *The provisions of Sections 300, 400, and 500 of this rule are not applicable to the following liquids*:

a. The storage of the following petroleum products below 150ºF that (outside of *combinations with others in* this listing) are not combined with any other material: Diesel #1 and Diesel #2 fuels, #1 through #6 heating fuels, turbine fuels, engine lubricants, motor oil *with a Society of Automotive Engineers rating of SAE 5 or higher*, hydraulic fluid, and kerosene.
b. Waste oil having a flashpoint greater than 100°F when stored.

c. Liquids that are beverages or foods, or their immediate precursors intended for their manufacture.
d. Solutions or mixtures that are made by mixing with water only odorless solid(s) containing no fluid.
e. Waste water.

102.4 ***Note that*** NSPS (New Source Performance Standards - Rule 360) and NESHAPs (National Emission Standard for Hazardous Air Pollutants - Rule 370) may be applicable.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

2__ ACTIONABLE VAPOR-ESCAPE CLUSTER (A V E C) – A vapor-loss condition *of stationary equipment* in which there are at least 6 simultaneous VOC-vapor escapes out of an uninterrupted space, each escape within 20 feet of another and each escape registering a Lower Explosive Limit (LEL) value between 10 and 20 percent on a CGD or 5,000 to 9999 ppmv on an OVA, in a pair of readings ~~done~~ performed according to subsections 503.5 and 503.7.

201 BULK PLANT - Any loading facility, except a bulk terminal, at which gasoline or a VOL is received from delivery vessels for storage in on-site stationary tanks, from which such liquid is later transferred to delivery vessels.

2__ BULK TANK - Any storage tank greater than 250 gallons capacity that contains VOC and meets any of the following descriptions:

205.1 Tank directly serves a loading rack or system that loads delivery vessels or *delivery* containers over 5 gallons (19 Liters) with gasoline or other VOL; or

205.2 Tank is plumbed to supply a tank that directly serves a loading rack or loading system; or

205.3 Tank is not a fuel-dispensing tank, and either supplies a VOL to a product or process that is not included in §205.1 or §205.2, or holds a VOL for sale or distribution.

20_ BULK TERMINAL - Any primary distributing loading facility where the gasoline arrives primarily by pipeline, or that has received more than 6,000,000 gallons (22,713,000 L) of VOL, including gasoline, in any calendar year since January 1, 1990.

2__ CGD – Combustible gas detector. A detection device that indicates organic vapor concentration in air as a percent of the vapor's lower explosive limit. For the purposes of this rule, a person shall calibrate a CGD according to the specifications of its manufacturer.

2__ CONE ROOF TANK – See **FIXED ROOF TANK**

2__ DEGAS – To willfully remove VOC-containing vapors from an enclosed space by any combination of active and/or passive means. Leaving a manway open on a tank containing gasoline or gasoline vapors is an example of passive degassing.

20_ DELIVERY VESSEL - Any vehicular-mounted container such as a railroad tank car, tanker truck, tank trailer, cargo tank, or any tire-mounted mobile container used to transport gasoline or other volatile organic liquid. This includes any hoses the vessel carries through which deliveries are made.

2__ EMISSION CONTROL SYSTEM (ECS) - A system, approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions of volatile organic compounds. Such system consists of an emissions collection subsystem and an emissions processing subsystem.

2__ FIXED ROOF TANK - A tank, manufactured with a continuous, rigid roof that is completely welded around its perimeter to the rim of the (usually cylindrical) midsection that forms its side(s). For the purposes of this rule, if a tank of this description also has a pan/lid/deck floating on its contents, the tank is considered to be a type of **Internal Floating Roof Tank** rather than a fixed roof tank, unless the owner/operator states in writing that the tank is to be considered a fixed roof tank. [For example, the owner doesn't want to maintain the floating pan of a small tank that will meet rule provisions without a pan.]

2__ FLOATING ROOF/PAN – Any of a variety of rigid or semi-rigid, disk-shaped assemblies, designed for pollution control, that continuously floats on the surface of a vertical tank's contents, covering the content's entire surface. The surface of the roof/pan is designed to be impermeable, except the roof's fittings may have certain gaps, the size of which are subject to regulations.

2__ FLOATING ROOF TANK – A tank that has a floating roof or pan. A floating roof tank is considered a vapor loss control device only if its floating roof/pan has an intact, tight fitting seal around its entire perimeter, and the roof/pan is maintained to prevent and correct any gap on its seal or fittings from exceeding the applicable limits of this rule. If the external surface of the floating roof is, in general, directly exposed to rain and sunlight, the tank is an external floating roof tank.

2__ FUEL-DISPENSING TANK – Any stationary tank that dispenses VOL into a motorized vehicle's fuel-tank to fuel the vehicle's motor/engine. This includes aircraft.

2__ GAS TIGHT – A condition in which surfaces being tested for VOC-vapor escapes show no leak of gaseous organic compound(s) exceeding 1000 ppm above background when measurements are made using EPA Method 21 with an instrument accurately calibrated with methane, pursuant to subsections 502.3 and 503.1c AND ATTACHMENTS ["ALPHA ONE" AND "ALPHA TWO"].

20_ GASOLINE - Any petroleum distillate or blend of petroleum distillate with other combustible liquid(s), such as alcohol, that is used as a fuel for internal combustion engines and has a vapor pressure at 100°F (37.8°C) between 4.0 and 14.7 psi (200 - 760 mm Hg.) as determined by the applicable test-method indicated in subsection 502.4b.

2__ GASOLINE VAPORS – Gaseous substances, which have evaporated from liquid gasoline and are usually found in mixture with air. Included are any droplets of liquid gasoline or of gasoline-vapor condensate that are entrained by the vapor.

2__ GAUGE FLOAT - A device to indicate the level of liquid within a tank. The float rests on the liquid surface. In a floating roof/lid tank, the float sits inside a well that penetrates through the tank's floating roof/lid.

2__ GUIDEPOLE – A continuous vertical pipe or rod, serving as an anti-rotation device, that is fixed to the top and bottom of a tank, and passes through an opening through the tank's floating lid/roof. A guidepole may be built with a succession of notches *or openings*, cut through its surface into its hollow core, along most of its span.

2-- HANDS-ON INSPECTION – A person touching an object in any of the following ways in order to inspect it: with bare hand(s), covered/gloved hand(s), or with a small tool or small object held at or within 1 foot (30 cm) of a tank surface by bare or covered hand(s).

2__ INTERNAL FLOATING ROOF TANK - A tank that both is equipped with a floating pan/roof the underside of which touches the liquid contents for most of its area, and is fitted with fixed roofing that fully covers the tank's interior so as to prevent precipitation and most direct sunlight from reaching the floating pan/roof.

2 LEAK FREE - Having no VOC-containing liquid escape of more than 3 drops per minute from an equipment system. This excludes the disconnect operation of a liquid fill line or vapor line.

2__ **LOWER EXPLOSIVE LIMIT (LEL) –** The lowest concentration of a combustible gas in air at standard conditions that will ignite with a spark. For example, the LEL of methane is 50,000 parts per million by volume.

2_ **NON-PRECURSOR ORGANIC COMPOUND -** Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity. EPA designates such compounds as "exempt". A listing of the compounds is found in Rule 100 of these Air Pollution Control Rules and Regulations.

2__ **ORGANIC LIQUID -** Any organic compound which exists as a liquid under any actual conditions of use, transport or storage.

2__ **ORGANIC VAPOR ANALYZER (O V A)–** A precision instrument that is capable of reading concentrations of gases to within 50 parts per million or less. When an OVA is used pursuant to this rule for detecting the concentration of VOC, it shall be calibrated using a methane standard.

2__ **OXYGENATE –** Any substance that contains a substantial portion of chemically bound oxygen and that is used as an additive in gasoline, typically exceeding 5% by weight, to reduce pollution.

2__ **P A V E (POTENTIALLY ACTIONABLE VAPOR ESCAPE) –** A vapor escape giving a reading between 10 and 19.9% percent on a CGD or between 5,000 to 9999 ppmv on an OVA, when deployed according to subsection 503.5.

2__ **PRESSURE TANK/VESSEL -** A tank or vessel designed and made to easily contain higher-pressure liquids so as to prevent any loss to the atmosphere during normal operation.

2__ **PRIMARY SEAL -** A rim-seal around the entire rim of a floating lid/roof that is designed to maintain an impenetrable surface that completely spans the ring-shaped space formed between the circumference of the lid/roof and the inner circumference of the tank. The lowest rim-seal on a lid/roof that has more than one rim-seal is the primary seal.

2__ **ROOF ACCESS HATCH -** An accessible opening in the fixed roof/cover of an internal floating roof tank that is sufficiently large to admit a person into the tank's interior.

2__ **SECONDARY SEAL –** A rim-seal around the entire upper rim of a floating lid/roof that is designed to supplement the primary rim-seal deployed below it and to entirely cover the space between the upper rim edge of the lid/roof and the inside wall of the tank with an impenetrable surface.

2__ **SIDE FILL PIPE -** A fill pipe that enters a tank's contents through the tank's side.

2__ **STATIONARY STORAGE TANK -** Any tank, reservoir or other container used to store, but not transport, organic liquids. Such a tank may have wheels, making it portable, when empty, from stationary site to stationary site.

2__ **STORAGE –** As pertains to Volatile Organic Liquids: their retention, holding, and/or preservation at a fixed location, often including protecting from loss and contamination. "Storage" includes ancillary operations such as:

- Transfer on-site from one fixed tank to another, by fixed piping or other permanent connection
- Mixing, cooling, or heating to retain or achieve a desired quality or uniformity;
- Infusing additives to maintain or create desired qualities.
- Using pumps and other mechanisms to accomplish these ancillary operations.

2 **SUBMERGED FILL PIPE -** Any discharge pipe or nozzle, the discharge surface of which is always completely submerged during normal tank use, excluding the latter phases of tank emptying.

2 **TANK CAPACITY –** The number affixed to a tank indicating its maximum capacity.

2__ **TOP FILL or VERTICAL FILL PIPE -** A fill pipe that is positioned such that it pierces the surface of a tank's liquid contents throughout the working range of the tank.

2__ **TRUE VAPOR PRESSURE (TVP) -** Absolute vapor pressure of a liquid at its existing temperature of storage and handling.

*2__ **UNDERGROUND STORAGE TANK (U S T) –** A tank that is located well below grade, entirely underground, and entirely surrounded by soil, aggregate, and/or other mineral-sands and gravel(s) except where there are attachments to typical tank equipment.*

2 **VAPOR COLLECTION/PROCESSING SYSTEM -** see **EMISSION CONTROL SYSTEM**

2__ **VAPOR LEAK –** An escape of VOC-containing vapor at a concentration that a CGD shows to be at least 20% of the lower explosive limit (LEL) or that an OVA shows to be at least 10,000 ppmv as methane, when either type device is used according to §503.5.

2__ **VAPOR LOSS CONTROL DEVICE -** Any piping, hoses, equipment, and devices which are used to collect, store, contain, retain, and/or process organic vapors at a bulk terminal, bulk plant, or other operation handling gasoline and/or other VOLs..

2__ **VAPOR TIGHT -** *An attribute of a surface. A surface or object is Vapor Tight when all of its external surface area from which VOC could possibly escape is surveyed with either* an organic vapor analyzer (OVA) or a combustible gas detector (CGD) with its probe positioned 1 inch (2.5 cm) from a potential VOC leak source shows **either** less than 10,000 ppm when calibrated with methane, or less than 20% of the lower explosive limit, when prepared according to the manufacturer and used according to subsection 503.5 of this rule. *The term, Vapor Tight, does not apply to* an actionable vapor-escape cluster.

*2__ **VAULTED SUBSURFACE TANK –** A tank that is entirely contained within a vault; the top of the vault is beneath the grade of the surrounding ground. Some or all of the tank's surface, including the surface of any insulation attached to the tank, is exposed to the air that is within the vault.*

2__ VOL (VOLATILE ORGANIC LIQUID) – Gasoline or any other VOC-containing liquid having a total vapor pressure of at least 1.25 pounds per square inch (64.5 mm Hg) at either 100°F (37.8ºC) or at its maximum temperature if heated by a device above 100°F.

2__ VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound that participates in photochemical reactions, except non-precursor organic compounds.

2__ ZERO-GAP POLE WIPER SEAL - A seal with no gap exceeding 0.06 inch (1.5 mm) between the guidepole or gauge well and pole wiper seal.

2__ ZERO-GAP SECONDARY SEAL – A secondary rim-mounted seal around the entire circumference of a floating lid/roof that is designed and deployed so as to have both of the following: no radial gap exceeding 0.06 inch (1.5 mm) between itself and the tank's wall; and, the total of all arcs with radial gaps over 0.02 inches (0.5 mm) does not exceed 5% of the circumference (18 degrees of arc). [These parameters exclude all measurements within 2 inches (5 cm) of a vertical weld.]
For example, if a tank with a 100-foot circumference has 1 foot of its circumference with a radial-gap of 0.4 inches between the seal and the tank's side, and 2 feet of its circumference with a radial-gap of 0.3 inches, and no other places along the rim-seal have a radial-gap, there is a total of 3 (=1+2) feet of circumference having more than 0.02 inches of gap. 3 feet is 3 percent of the 100-foot circumference of the tank, far less than the 5 percent allowed. Therefore, the seal meets the zero-gap criteria.

SECTION 300 - STANDARDS:

301 BASIC REQUIREMENTS FOR ALL BULK TANKS:

301.1 Vapor Pressure Information Required:

a. ***VP At 100 Degrees F:*** Any person storing an organic liquid in a tank over *250* gallons capacity shall keep a hard-copy entry of the stored liquid's vapor pressure (VP) at one of the following temperatures, as applicable:
(1) At either 100°F (37.8°C) or 68°F (20°C), if not heated over 100˚F by a heating device
(2) At its maximum temperature if heated by a heating device over 100°F.

b. ***Accuracy and Sources Of VP Information:***
(1) *Vapor pressure values* shall be accurate to 0.1 psi (or 5 millimeters {mm} of mercury [Hg]) for any organic liquid *in a* ***stationary*** *storage tank* that has a vapor pressure between 1.0 and 2.0 psi (52–103 mm Hg) at 100°F or between 0.5 and 1.0 psi (26 - 52 mm Hg) at 68°F. *In such vapor pressure ranges, vapor pressure shall be determined according to §407, using reference tests or professional texts. This also applies to portable containers exceeding 999 gallons capacity.*

(2)*For portable storage containers less than 1000 gallons and for vapor pressures at 100°F of less than 1.0 or more than 2.0,* the entry *for the*

vapor pressure value shall be within the nearest 0.5 psi (26 mm Hg) *and may be taken from manufacturer's data sheets if they comply with §407.2*.

c. Excluding gasoline, if the chemical makeup of *an affected* tank's contents varies in any way (as happens with solvent mixtures, etc.), make an entry according to one of the following regimens; this does not apply to *a* tank that always contains the same chemical substance*(s) having perfectly consistent* purity*, mix ratio (if a mixture), and level of dilution (if diluted).*

(1) Make a record-entry each time the vapor pressure of the tank's contents varies by more than 0.55 psi (at the chosen measurement temperature of 100° or 68°) from the previous record-entry; or

(2) a person may make an entry *for a tank* each month of that day's vapor pressure of the contents, measured at 100° or 68°. When using this option, no entry *or sampling* shall be more than 40 days from the previous one.

301.2 Equipment:

a. All equipment associated with VOL-storage operations shall be maintained to be leak free, vapor tight, and in good working order.

b. Bulk tanks and all vapor-loss control equipment required by this rule shall be properly installed, properly maintained, properly operated, and shall meet the applicable requirements of Section 300.

301.3 Loss Control:

a. *Measures shall be taken to avoid and prevent spilling volatile organic* liquid(s).

(1) Spills *of VOL* shall be contained.

(2) Both rags and spill-control media containing VOL shall be contained to *curb* evaporation.

b. *Organic liquid* shall not be discarded in sewer*age unless the sewerage-ownership gives permission and ownership's requirements are obeyed.*

c. *Organic liquid shall not be discarded on the ground* or stored in open containers.

301.4 Submerged Fill For *Stationary* Tanks: All *stationary* tanks shall have submerged fill that meets the following applicable limits as determined by size and configuration:

a. Tanks With A Side mounted fill-pipe:

(1) Tanks Less Than 40,000 Gallons: For a *stationary* tank less than 40,000 gallons (151,420 L) but greater than 250 gallons that has a side-mounted fill-pipes, the part of such fill-pipe opening most vertically distant from the bottom shall not exceed 18 inches.

(2) Tanks Of 40,000 Gallons Or More: For *a stationary* tank 40,000 gallons (151,420 L) or greater that has side-mounted fill-pipe(s), each fill-pipe opening shall always be completely submerged except when the tank is

drained for maintenance, or for situations allowed in writing by the Control Officer.

b. Tanks With A Top Or Vertically Mounted Fill Pipe: For a tank that is filled via a top- or vertically mounted fill-pipe, the part of the opening most vertically distant from the bottom shall not exceed 6 inches (15.25 cm), irrespective of the tank's size.

302 MAJOR METHODS OF VAPOR CONTROL FOR LARGER TANKS: A tank that is referred to this subsection 302 by provisions of this rule shall meet at least one of the following 4 control measures:

302.1 Be an external floating roof tank that meets the applicable requirements of subsection 306.

302.2 Be equipped with an impermeable membrane or bladder meeting American Petroleum Institute specifications and performance criteria. The membrane/-bladder shall be so affixed that vapor cannot pass from the underside to the topside at any place.

302.3 Be a fixed roof tank that is gas tight on all external surfaces and be served by an Emission Control System (ECS) that meets the requirements of subsection 308.

302.4 Be an internal floating roof TANK that meets all applicable requirements of subsection 307.

303 FIXED ROOF, CONE ROOF, AND HORIZONTALLY MOUNTED BULK TANKS:

303.1 Fixed-Roof, Cone-Roof, Or Horizontally Mounted Tank Of Less Than 20,000 Gallons: Each fixed-roof, cone-roof, or horizontally mounted bulk storage tank of less than 20,000 gallons capacity shall, when in VOL service, meet all **applicable** provisions of §303.2 or comply with subsection 302.

303.2 Be gas tight on all external surfaces and have a pressure valve and a vacuum valve conforming to **a, b, c**, or **d** as follows:

a. Have a pressure valve set at a minimum of 0.5 psig and a vacuum valve set at negative 0.5 psig or greater vacuum; or

b. Have a pressure valve set at a minimum of 0.5 psig and a vacuum valve set at no less than 90% of maximum safe, working-vacuum; or

c. Have a pressure valve set at not less than 90% of the tank's maximum, safe working pressure and a vacuum valve set at negative 0.5 psig or greater vacuum; or

d. Have a pressure valve set at not less than 90% of the tank's maximum, safe working-pressure and a vacuum valve set at no less than 90% of maximum safe working vacuum.

303.3 TANKS EXCEEDING 19,999 GALLONS

a. Tanks Over 19,999 Gallons With Non-gasoline Contents: A fixed–roof *tank*, horizontally mounted *tank*, or any other tank with a capacity of

20,000 gallons or greater shall meet the control requirement of subsection 302 when in non-gasoline VOL service.

b. Gasoline In Tanks Exceeding 39,999 Gallons: A tank of 40,000 gallons or greater *that stores gasoline* shall fully meet the vapor-control requirement of subsection 302.

c. Tanks 20,000 To 39,999 Gallons For Gasoline: A tank with a capacity between 20,000 and 39,999 gallons, be it a fixed roof tank, a horizontally mounted tank, or other tank shall, in order to hold gasoline, comply with subsection 302 within [6 months after rule adoption] if, after February 1, 2001, it is installed or *undergoes* major modification or is switched from containing a non-gasoline liquid to hold gasoline.

d. Horizontally Mounted Gasoline Tanks Exceeding 19,999 Gallons: By the following dates, no horizontally mounted tank of 20,000 gallons or greater capacity shall contain gasoline unless such tank meets the requirements of §302.2 or §302.3, by the applicable date:

(1) *For a* tank *that* was installed after December 31, 1999, *meet the requirements by* {6 months after rule adoption}.

(2) *For a* tank *that* was installed on or before December 31, 1999, *meet the requirements by* May 15, 2003.

e. All Tanks Of 20,000 To 39,999 Gallons That Contain Gasoline: By December 31, 2008, no tank with a capacity between 20,000 and 39,999 gallons shall contain gasoline unless it complies with subsection 302.

f. Exception For USTs And Vaulted Subsurface Tanks : *A UST or vaulted subsurface tank, either of which exceeds 19,999 gallons capacity and contains VOL:*

(1) *requires control per §302 if it contains VOL and is installed after April 30, 2002; OR*

(2) *shall meet all* ***applicable*** *provisions of §303.2 or comply with subsection 302 if it is installed before May 1, 2002. If given major modification on or after May 1, 2002, such a tank shall comply with §302.*

304 TANKS STORING GASOLINE OR OTHER V.O.L. WITH AN ACTUAL VAPOR PRESSURE OF 11 PSIA OR GREATER:

304.1 No person shall place, store, or hold in a bulk tank of 20,000 gallons capacity or greater, gasoline or other subject volatile organic liquid having a true vapor pressure between 11.0 psia (569 mm Hg) and 14.7 psia (760 mm Hg) unless such a tank is either a pressure tank or is a gas-tight tank equipped with an Emission Control System designed and operated pursuant to Section 308 of this rule.

304.2 No person shall place, store, or hold in a bulk tank VOC-containing liquid with a true vapor pressure above 14.7 psia (760 mm Hg) unless such a tank is a pressure tank.

305 RAILROAD TANKCARS: *Rule 351, §305, governs the transfer of VOL.*

305.1 The lids of railroad tankcars shall be kept completely closed unless unloading, sampling, gauging, maintenance, or inspection procedures are in progress.

305.2 If a privately operated railroad tankcar, that is not subject to United States Department of Transportation (DOT) standards, is on tracks and used to hold VOL, such a railcar's containment integrity shall conform both to DOT standards for the particular liquid(s) contained and to all DOT standards that are applicable to the particular operational circumstances pertaining to proper liquid and vapor containment.

306 EXTERNAL FLOATING ROOF TANK OF ANY CAPACITY: An external floating roof tank of any capacity in VOL service shall meet the following requirements:

306.1 Requirements For The Rim/Eave Seals Of External Floating Roof Tanks:

a. Primary Seal: The roof of an external floating roof tank shall be equipped with a primary seal that closes the space between the roof's perimeter (eave) and the tank wall.

b. Maximum *Primary* Seal Gap: The accumulated area of gaps between an EFR tank's wall and primary seal shall not exceed 10 square inches per foot of tank diameter (212 cm^2 per meter); the width of any portion of any gap shall not exceed 1½ inches (3.8 cm).

c. Secondary Seal Design: An external floating roof tank shall have a continuous secondary seal that:
(1) Is rim-mounted; and
(2) Is of a design that accords with accepted standards of the petroleum industry; and
(3) Is mounted above the primary seal (not attached to it); and
(4) Completely covers the space between the roof edge and the tank wall, except as allowed in subsection 306.1d.

d. Allowable Secondary-Seal Gap Area:
(1) Determinations ~~of~~ gap area ~~shall only be made~~ at the point(s) where the gaps exceed 1/8 inch (3 mm); and
(2) The accumulated area of gaps *(over 1/8th inch)* between the tank wall and the secondary *rim*-seal shall not exceed 1.0 square inch per foot (21.2 cm^2 per meter) of tank diameter; AND

(3) The width of any portion of any gap shall not exceed ½ inch (1.27 cm); AND

(4) Make a permanent record *of the results of the foregoing, per §501.2*.

e. Rim-Seal Integrity: The secondary seal shall have no perforation through it to the annular space between it and the primary seal, except as allowed by *§409.*

306.2 Requirements For Equipment Of External Floating Roof Tanks

a. Covers, Seals, & Lids:

(1) Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof is to be equipped with an **intact and** gasketed cover, seal, or lid. This includes any orifice in a floating roof through which the guide-pole is mounted.
(2) Each such cover, seal or lid shall be in a closed position (i.e., no visible gap) at all times, except temporarily during those periods when the correct operation of the floating roof requires that such a closure be opened.

b. Vents:
(1) Automatic bleeder vents shall be closed at all times, except when the roof is floated off or landed on the roof leg supports.
(2) Rim vents, if provided, shall be set to open only when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

c. Slotted Guidepoles: By June 13, 2002, the guidepole and guidepole-well through an external floating roof shall *either* be equipped according to the provisions of §505.6 ~~subsections **(1)** and/or USEPA STERRP Appendix I (Federal Register: April 13, 2000 (Volume 65, Number 72)~~ *or an agreement shall have been signed with EPA pursuant to §402.4*:

306.3 Requirements for the Inspection And Maintenance of External Floating Roof Tanks: The operator of each floating roof tank containing VOL shall abide by the tests and Control Officer invitations detailed in §505, and shall schedule them according to the applicable schedule in Section 400.

a. Mandatory Periodic Inspection of the Secondary Seal:
(1)*Determine* the area of the secondary seal gaps *per §505.2 and make a* permanent record shall of the findings *per §402.3*.
(2) During the second half of each calendar year **visually** inspect the secondary seal *per §505.2b and* note in the record per *§402.3*

b. Once a year, measure the width of the largest gap at each of 5 exposures, pursuant to subsection 402.2.

c. 5-Year, Complete Primary Seal Inspections: Every 60 months, the owner/operator of a subject EFR tank shall view the primary seal, following the procedure in §505.3:

d. 10-year Inspection: No less than every 10 years (120 months), the owner/operator of an external floating roof tank shall check the underside of the rim seal, following the procedure in §505.4.

307 INTERNAL FLOATING ROOF/PAN TANK OF ANY CAPACITY: An internal floating roof tank of any capacity in VOL service that uses the floating pan/roof to meet the vapor-control requirements of this rule shall meet the following requirements:

307.1 Requirements For The Rim-Seals Of Internal Floating Roof Tanks: The rim-seal of an internal floating roof tank shall meet the requirements of **a** and **b:**

a. The accumulated area of gaps between a tank's wall and primary rim-seal shall not exceed 10 square inches per foot of tank diameter (212 cm^2 per

meter) and the width of any portion of any gap shall not exceed 1½ inches (3.8 cm).

b. Comply with (1) or (2) following.

(1) Comply with 40 CFR Part 60, Subpart Kb's rim-seal requirements, notwithstanding the type of facility and the date of tank construction, reconstruction or modification; **or**

(2) Have at least one continuous seal which covers the space between the roof/pan edge and tank wall to the degree required by subsection 307.1a and meet at least one of the following requirements:

(a) Have a contact-type roof resting completely on the liquid surface; **or**

(b) Have a liquid mounted seal; **or**

(c) Have two seals, a primary and a secondary.

307.2 Requirements For Equipment Of Internal Floating Roof Tanks:

a. Covers, Seals, & Lids:

(1) All openings on an IFR tank, except drains, shall be equipped with an intact and gasketed cover, seal, or lid.

(2) The cover, seal, or lid on an IFR tank shall be in a closed position at all times, except temporarily during those periods when the correct operation of the floating roof requires that such closures be opened.

b. Vents: On an IFR tank:

(1) Automatic bleeder vents shall be closed at all times, except when the roof is floated off or landed on the roof leg supports.

(2) Rim vents, if provided, shall be set to open only when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

c. Solid Wells: Solid sampling or gauging wells, and similar fixed projections through an internal floating roof such as an anti-rotational pipe, shall meet the following conditions:

1) The well shall provide a projection below the liquid surface.

2) The well shall be equipped with a cover, seal or lid, which shall at all times be in a closed position with no gap exceeding 0.32 cm (1/8 in.), except when the well is in use.

3) The gap between the well and the roof shall be added to the gaps measured to determine compliance of the secondary seal and in no case shall exceed 1.3 cm (1/2 in.).

d. Slotted Wells: Slotted sampling or gauging wells on an IFR shall meet the following conditions:

1) The well shall provide a projection below the liquid surface.

2) The gap between the well and the roof shall be added to the gaps measured to determine compliance of the secondary seal and in no case shall exceed 1.3 cm (1/2 in.).

e. Emergency Drain: Any emergency roof drain on an IFR tank shall be provided with a slotted membrane fabric cover, or equivalent, that covers at least 90% of the area of the opening.

307.3 **Inspections:** The owner/operator of an internal floating roof tank shall have inspections conducted per subsections 403 and 506 at least twice per year, with more comprehensive inspections every 5 and 10 years. A vapor detector shall be used to test for VOL vapor, before June of each year.

308 EMISSION CONTROL SYSTEM (ECS) REQUIREMENTS:

308.1 An Emission Control System that serves a bulk tank in order to meet the requirements of this rule

~~a.~~ **a.** shall either reduce the amount of VOC entering it by at least 95% Or

~~b.~~ **b.** emit no more than 10 mg/m^3 of input per square meter of liquid surface calculated at maximum surface area of the stored liquid (viz. where the tank is most distended from vertical), whichever is greater.
For example, a tank with 707 square meters of surface [15 meters radius] would be allowed up to 7070 milligrams of VOC exhausted from the ECS per cubic meter of vapors input into the ECS.

308.2 The vapor processing subsystem of an ECS used to meet the requirements of this rule [pursuant to subsection 302.4] shall be gas-tight except for the designated exhaust.

308.3 Any tank gauging or sampling device on a tank, vented to such an Emission Control System, shall be equipped with a gas-tight cover which shall be closed at all times except during gauging or sampling procedures.

308.4 All pressure-vacuum valves of an ECS shall be constructed and maintained in a gas tight condition except when the operating pressure exceeds the valve release setting.

308.5 The ECS and its capture subsystem shall be so designed and operated that back pressure in the piping from the tank to the ECS shall never be greater than 50% of the pressure at which any of the tank's pressure relief subsystems actuates.

309 DETECTION, NOTIFICATION, REPAIR, RETESTING, & CLEANING REQUIREMENTS:

309.1 **Leak Detection Required:** The entire length of all piping in VOL service including the full perimeter of all pipe welds and connections, plus **all** other viewable equipment in VOL service such as valves, pumps, and shunts shall be checked annually for both liquid and gaseous escape. This shall be accomplished as follows in §**a. and §b**. An OVA or CGD, used in accordance with subsections 502.3 and 503.5, is allowed in place of the detection methods using sight, touch, and/or sense of smell.

a. Bulk Plants: Use at least sight and/or direct touch on all such equipment located above ground.

b. Terminals: Use a CGD or OVA to check all pumps, valves, and bolt-fastened fittings in VOC service except pipe. Use sight and/or touch for pipe and pipe welds.

c. Closed Vent Tank & ECS: Use an OVA, or use a CGD that shows response at 1% LEL, to check for escape from any ECS used to comply with this rule.

309.2 Response To Exceedances: Except as superseded by the applicable procedures of either Rule 130 (Emergency Provisions) or Rule 140 (Excess Emissions), the owner/operator of a vapor loss control device that exceeds the limits set by this rule shall notify the Control Officer and observe the following time schedule in correcting such exceedances:

a. Escapes or leaks having concentrations at or above the lower explosive limit (at or above 50,000 ppmv as methane) and exceed an applicable limit shall not operate in uncorrected condition for a total exceeding 24 hours once the exceedance is detected.

b. Escape concentrations less than 50,000 ppm as methane but violating an applicable gas-tight or vapor-tight standard for vapor collection/processing shall not operate in uncorrected condition for a total exceeding 3 days (72 hours) once the violation is detected.

c. Except as the Control Officer otherwise specifies, a leak source subject to subsections 309.1 or 309.2 must be tested with a CGD or OVA after leak-correction is deemed complete within 1 hour of recommencing use.

309.3 Cleaning A Floating Roof Tank: For tanks required by subsection 309.5 to have a emissions controlled during degassing, the ECS or equivalent control measure must be used until there is negative pressure in the tank and either:

a. The detector in the stream of ECS inlet shows no more than 30% LEL (or 15,000 ppmv as methane) for 15 consecutive minutes; or

b. After the reading of the detector in the ECS inlet stream drops below 45% LEL (22,500 ppmv as methane) for 1 minute or more and then a CGD or OVA for at least 15 consecutive minutes shows readings not exceeding 50% LEL (25,000 ppmv as methane) while using a probe according to subsection 503.6.

309.4 Setting A Floating Roof/Pan On Its Legs: A floating pan of a floating roof tank containing VOL shall not be set on its legs so that the underside of the pan/roof is not in full contact with the liquid without prior hardcopy notification of the Air Quality Manager, the Control Officer, or their designee; a phone call to plus a fax to one of them is generally acceptable; This does not apply to seasonal stock changes.

309.5 Degassing Terminal Tanks: At a bulk terminal, no person shall clean out or otherwise degas a bulk tank storing VOL with vapor pressure at 100°F exceeding 4.0 psi (206 mm Hg) unless the VOC that otherwise would be emitted is reduced by 90 % using a control measure or device subject to approval by the Control Officer, until the maximum concentration of vapor within the tank conforms to the parameters in §309.3. This applies to tanks of the following capacities after the applicable dates:

Tanks over 240,000 gallons (5714 bbls) [908.5 M^3] {Date of adoption of this revision}.

Tanks of 100,000 - 240,000 gallons: December 31, 2003

Tanks of 40,001 – 99,999 gallons (151.42 M^3): December 31, 2008.

310 EXEMPTIONS:

310.1 **Limited Exemption - Removal From and Return to Service:** The applicable control requirements of subsections 301.2 through all of 308 shall not respectively apply to storage tanks when the equipment referred to is affected as a result of tank cleaning, stock change, tank and roof repairs or removal of contaminated stock, decommissioning or temporary removal from service provided that notification requirements of Section 400 are met.

310.2 **Alternative Vacuum Setting:** For a bulk tank, placed at a site before December 1, 1999, that uses a pressure valve and vacuum valve to meet the requirements of §303.1 but is not designed to meet a vacuum valve setting required by subsection 303.2, the provisions of 310.3a that follow are allowed to be substituted if the requirements of 310.3b are met.

a. The vacuum valve setting shall be at least half of the maximum design vacuum or -0.06 psig, whichever is the greater vacuum.

b. A facility manager or officer either provides the Control Officer documentation that the requirements of subsection 303.2 cannot be met or signs a letter stating that the value for maximum safe working vacuum has been sought in good faith by the owner/operator but not found.

310.3 **Alternative Pressure Setting:** For a bulk tank that is placed at a site before December 1, 1999, that uses a pressure valve to meet the requirements of §303.1 but is not designed to meet a pressure valve setting required by subsection 303.2, the provisions of 310.3a that follow are allowed to be substituted if the requirements of 310.3b are met.

a. the pressure valve setting shall be at least half of the maximum design pressure.

b. A facility manager or officer either provides documentation that the requirements of §303.2 cannot be met or signs a letter stating that the value for maximum safe working pressure has been sought in good faith by the owner/operator but not found.

310.4 A tank served by an ECS having a valid air pollution permit is not subject to the submerged fill requirements under subsection 301.4 nor is a tank eligible for the exemptions of subsections 310.2 or 310.3.

` **310.5** Except as otherwise addressed by subsection 309.3, the owner or operator is exempted from vapor-purging prohibitions of this rule if such purging is accepted by API as good practice and does not violate fire or safety codes. This includes purging that occurs incidental to repairs and inspections.

310.6 **Refrigerated Tanks:** A continuously refrigerated tank of VOL that is always operated so that the vapor pressure never reaches 1.25 psia (64.5 mm Hg), whenever holding VOL, is exempt from all requirements from Section 302 through subsection 308.5 if the tank has an Air Pollution Permit and:

a. The tank has a properly working temperature measuring device that automatically gives a maximum temperature reading, and

b. The maximum daily temperature of the VOL is recorded daily in a permanent log or chart, accessible to the Control Officer upon request; and

c. Permanent records are kept of each type of VOL stored and its vapor pressure both at 100ºF (37.8ºC) and at the maximum temperature of storage.

d. A permanent, continuous temperature recorder must be in continuous use if the VOL ever reaches a temperature where its true vapor pressure exceeds 0.99 psi.

e. Except as allowed in writing by the Control Officer, the exemption offered by this subsection 310.6 is permanently forfeited if there is a lapse in following all requirements of §310.6a through §310.6d.

310.7 Seasonal Exemption of Certain Tanks from Degassing Controls:

a. Upon prior approval by the MCESD Air Quality Division Manager (or the Control Officer) of a complete submittal, a terminal may be excepted during the months of December and January from ECS requirements of subsection **309.5** for tanks with a total capacity less than 12000 barrels (504,000 gallons) {1907.85 cubic meters}. The submittal shall show relevant dates, procedures, and calculations of emissions that use the actual temperature of the product, its true vapor pressure at actual temperature, and its measured vapor pressure at 100°F.

b. The Air Quality Division Manager or MCESD Control Officer may disapprove the exemption described in §310.7a or a similar exemption on account of any of the following:

- A forecast of elevated temperatures; or
- Simultaneously elevated emissions from this or other gasoline terminal(s); in the County, or
- There is a history of poor maintenance and/or of elevated emissions at the terminal.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 SCHEDULE: OBLIGATION OF OPERATOR – NOTIFICATION SCHEDULE & Control Officer ASSISTANCE:

401.1 Notification Schedule Prior To Tank Evacuation:

a. Prior to cleaning the inside of a tank in which an owner or operator intends to store a VOL, such person shall give the Control Officer written notice at least 10 working days in advance or at least 7 working days prior to the expected initial day that the tank's status will allow direct inspection by a person without breathing devices.

b. In emergencies or cases where the operator must take quick action, the access period shall be made sufficiently long that in no case shall the Control officer be notified less than 7 days prior to the last day that the tank is still accessible to direct inspection by the Control Officer.

401.2 Regarding Disabling A Vapor-Loss Control Device:: Ref. §310.1, Prior to disabling or reducing the efficacy of a required vapor-loss control device in the course of stock change, tank and roof repairs, removal of contaminated stock, decommissioning, or temporary removal from service, give notice according to one of the following:

a. Three days prior to such work being done (i.e., "commencing"), written notice is received by the CONTROL OFFICER and approval is granted prior to commencing; **or**

b. Prior to commencing, approval is granted by the CONTROL OFFICER during Division working hours and written notice is received by the CONTROL OFFICER within 3 days after such work has been done; **or**

c. Outside of Division working hours, prior to commencing, the CONTROL OFFICER *gives approval via direct contact or via direct voice-telecommunications* and written notice is received by the CONTROL OFFICER within 3 days after such work has been done;

401.3 Regarding Required Promptness In Connection with Outages Scheduled Per §401.1 or 401.2: When the floating roof is resting on the leg supports, the process of filling, emptying, and refilling shall be continuous and shall be accomplished as rapidly as possible according to written API best practices or existing written procedures of the facility.

401.4 ***Control Officer Accessible:*** For 5th-year EFR inspections and 10th-year inspections of both EFR (§505) and IFR tanks (ref. §506), the owner/operator shall provide access such that the Control Officer is enabled to observe all phases of one complete cycle while primary seal gap measurement are made around the entire perimeter.

401.5 Schedule For Completing Rim-Mounted Seals: The requirement of subsection 306.1c to have rim-mounted secondary seals on all external floating roof tanks storing VOL must be completed by January 1, 2003.

402 INSPECTIONS OF EXTERNAL FLOATING ROOF TANKS:

402.1 Operator-Initiated Partial Primary Inspection: In the first half of each calendar year, the owner operator shall inspect the primary seal according to subsection 505.1. Record the results according to subsection 501.2.

402.2 Control-Officer Initiated Primary-Seal Inspection:

a. On an annual basis, the Control Officer may request that the owner/operator of an external floating roof tank make the primary seal envelope available for unobstructed inspection by the Control Officer at *a minimum of* 4 locations around the perimeter of the seal. The protocol is set forth in §*505.1b*.

b. If the Control Officer detects an apparent violation as a result of any such inspection, the Control Officer may require such further unobstructed inspection of the seals as may be necessary to determine the condition of the upper side for the entire seal circumference.

402.3 Annual EFR Tank Secondary Seal Gap Measurement:

a. Both at the onset of use of a newly installed seal and each calendar year prior to June, the owner/operator of an EFR tank shall have the area of the secondary seal gaps determined for the seal's full perimeter for each tank containing gasoline or other VOL, according to subsection *505.2*. A

permanent record shall be made of the findings, according to subsection 501.2.

b. *Once each year for each subject EFR tank the Control Officer may require that the same procedure be performed in the Officer's presence at the time the Control Officer specifies, if discussion for a mutually agreed time fails.*

402.4 Slotted Guidepole Agreement:

a. By June 13, 2002, the slotted guidepole and its guidepole-well through an external floating roof shall *either* be equipped according to the provisions of *§505.6* and/or USEPA STERRP Appendix I (Federal Register: April 13, 2000 (Volume 65, Number 72) *or a* valid Partnership Agreement in EPA's Storage Tank Emission Reduction Partnership Program under Annex A *agreement shall have been signed with EPA.*

~~A valid Partnership Agreement in EPA's Storage Tank Emission Reduction Partnership Program under Annex A excuses an operator from the June 13, 2002 deadline for completing the "no visible gap" requirements of subsection 306.2c for slotted guidepoles.~~

403 SCHEDULE OF OBLIGATIONS FOR INTERNAL FLOATING ROOF TANKS: The operator of each internal floating roof tank containing VOL shall schedule and do the following types of tests and respond to Control Officer invitations.

403.1. Semi-Annual Inspection. Twice ~~E~~each year inspect the tank seals according to §506.1.

403.2 Annual Control Officer Requested: The owner or operator of any internal floating-roof tank used to meet the vapor loss control requirements of this rule shall make the tank available for visual inspection by the Control Officer on an annual basis, subsequent to a Control Officer's discretionary request for such an inspection. The owner/operator shall supply an operator operating a calibrated OVA/CGD for such inspection, and shall also provide adequate means of illumination. The owner or operator shall provide the CONTROL OFFICER access to observation platform(s) or window(s).

403.3 Annual Test For Vapor Intrusion: The operator shall annually test for vapor leakage (through the floating pan/roof or its seals and equipment) with a vapor detector, according to §506.2. This shall also be done each time an inspection is made by the Control Officer pursuant to the previous subsection, 403.2.

a. The Control Officer shall be notified in writing of readings exceeding 20% LEL on CGD or readings exceeding 10,000 ppmv by OVA calibrated as methane.

b. Retest LEL in vapor space within one week after seal repairs are made.

403.4 5-Year, Complete Primary Seal Inspections:

a. Every 60 months, the owner/operator of an IFR tank containing VOL shall perform the procedure in §506.3.

b. Advance notification shall be given in accordance with §401.2, if the tank is not cleaned out.

c. The owner/operator shall provide access such that the Control Officer is enabled to observe all phases of one complete cycle of gap measurement around the entire perimeter.

d. The foregoing requirements of this subsection 403.4 are waived if at least 19 consecutive quarters of data from testing conducted each season (rather than just annually) according to the provisions of subsection 403.3 and no reading exceeds 20% LEL on CGD or, if an OVA is used, exceeds 10,000 ppmv as methane.

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403.5 Primary Seal Direct Inspection Every 10 years:

a. The primary seal of an internal floating roof shall be directly, hands on inspected no less than every 10 years, initiated by the owner/operator.

b. An IFR tank that contains gasoline or other VOL on January 1, 2001 and has not had hands-on inspection of the full perimeter of the primary seal in the period since January 1, 1992 shall before January 1, 2003~~2~~ or within 3 months after a reading that exceeds 20% LEL or 10,000 ppmv as methane in an annual inspection, be inspected along its entire perimeter; ~~A~~advance notice shall be given the Control Officer pursuant to subsection 401.

c. (Re)starting VOC Service: After January 1, 200**1** the owner/operator of any IFR tank that both receives gasoline or other VOL for the first time since January 1, 2001, **and** has not had hands-on inspection of the full perimeter of the primary seal in the 9 years (3288 days) immediately prior to that initial receiving of VOL, shall within 3 months of a reading exceeding 20% LEL or of a reading exceeding 10,000 ppmv as methane have performed the notification and inspection procedure set forth in subsections ~~403.2d(3) immediately preceding.~~ 403.3a and 401.~~.~~

404 Schedule For Vapor Leak Detection On Fixed Roof Tanks: Unless more frequent survey's are required by permit, perform the initial survey for leaks no more than 5 years after a tank's installation or by June 1, 2002, whichever is later; and:

404.1 If the survey detects no leaks,

a. Conduct follow-up surveys at least once every 5 years for tanks over 40 years old; and

b. Conduct follow-up surveys at least once every 8 years for tanks under 40 years old; and

404.2 If a leak is found,

a. Correct the leak and retest

b. Survey the tank at least once each year thereafter; and

c. If no leaks are found in 2 consecutive annual inspections of the tank, then return to the instructions of §403.na, preceding.

405 LEAKS FROM STORAGE AND TRANSFER EQUIPMENT: The Control Officer, at any time may monitor a storage system, an ECS, or other vapor collection/processing system for vapor leaks by the methods described in subsection 503.5 of this rule.

405.1 Leakage Assessment: The leak status of vapors from liquids containing both VOC and non-VOC organic components shall be judged as if the leak were

entirely a VOC. For example, a vapor leak from a solution of acetone and gasoline that shows a concentration above 20% LEL is an exceedance.

405.2 **Deadline for repairing leaks:** Liquid leaks from a tank, valve or piping; vapor leaks from a fixed roof tank, from an ECS used to control emissions from a fixed roof tank, or from piping shall be repaired within 7 days of discovery.

406 FULFILLING 2 OR MORE REQUIREMENTS WITH A SINGLE SERIES OF ACTIONS: Requirements such as partial primary seal inspection – whether routine or CONTROL OFFICER-commanded – and secondary seal gap-inspection and gap-measuring can be combined in the following situations:

406.1 If the Control Officer exercised the annual right to cause the owner operator of a bulk facility to make the primary seal available in 4 places per subsection 402.2, this counts as the first of the 2 required semi-annual inspections.

406.2 If the owner/operator of a bulk facility initiates a 4 quadrant primary seal inspection of an EFR tank [ref. subsection 306.3b] having given adequate advance notice to the Control Officer and the Control Officer elects not to inspect at that time, this counts as one of the 2 semi-annual inspections required under subsection 306.3.

407 Replacement of Seals: When a tank rim-seal is replaced, the seal shall be replaced with a type of seal that is either on the "A" or on the "B" list of Rule 463, Attachment A ("Floating Roof Seal Categories"), of (California's) South Coast Air Quality Mgmt. District, and with a seal-model name/number and manufacturer on that Rule's most recently revised approved-list; however, the Control Officer may choose a seal or manufacturer not on such list(s) or may limit the choices on the list(s).

408 Sources Of Vapor Pressure Information:

408.1 *With reference to §301.1b(1), in such vapor pressure ranges (1.0 – 2.0 at 100°F), a vapor pressure value shall be determined for routine purposes from values, formulas, and/or calculations in professional reference texts, or be determined by applicable test methods in subsections 502.4 and 503.4. In a contesting situation, a result that is obtained from such a method prevails over a value obtained from texts.*

408.2 *With reference to §301.1b(2) with* **VP** *less than 1.0 or more than 2.0, values are allowed to come from manufacturer's data sheets if the sheet gives the value to the nearest tenth of a psi. The same is allowed for vapor pressure values at 68°F that are less than 0.5 or more than 1.0 psi.*

409 **Option For Perforated Outer Layer of Rim-Seal: [ref. §*306.1e.*]**

409.1 If the outer layer of a multi-layer secondary seal fabric is perforated as determined by visual or other sensory observation, the owner/operator shall **within 24 hours** of initial detection make a log entry of the finding and take readings at the widest gap of *each* perforation, using a CGD or OVA operated per the detection method in §503.5. Record the measurement results within 24 hours *per §501.2a*; and

409.2 If there is **not** an exceedant reading, *repeat the monitoring* according to subsection 503.5 *within 35 days* at the widest gap of each such

opening/perforation *and record within 24 hours per §501.2a. Repeat the process described in the preceding sentence within 35 days; OR.*

409.3 *If there is a* (exceedant) reading above 20% LEL or 10,000 ppm as methane, notify the Division Manager or Control Officer within 24 hours. Such reading shall be notice to the owner/operator that either all perforations on that secondary seal fabric shall be repaired within 72 hours or each seal-section with a perforation be replaced within 14 days of the initial exceeding reading.

409.4 The Control Officer may require the same procedure as *is described* in *the 3 preceding* subsections for each partially penetrating crack or surface erosion in a **single** layer secondary seal that doesn't (yet) show penetration to the annular space.

410 UNCORRECTED AVEC: If reinspection shows the escapes of an Actionable Vapor Escape Cluster have not been stopped after the Control Officer has issue a written warning, the situation shall constitute a violation.

SECTION 500 - RECORDKEEPING, MONITORING, TESTING, AND REPORTING: Any person whose tanks are subject to the emission-control provisions of this rule, shall comply with the *applicable* requirements of subsections 501, *through 506* that follow. Records shall be retained for 5 years and shall be made available to the Control Officer upon request.

501 ORGANIC LIQUID RECORDS:

501.1 Tank Type and Vapor Pressure Records: A person whose tanks are subject to the emission-control provisions of this rule shall keep accurate records of such tanks as follows:

a. Tank Description: List the tank ID (number, etc), capacity, type of tank, type of seals if any. For example: Tank #4, 650,000 gallons [can use metric: 3000 M^3], welded steel with welded cone top, internal floating pontoon pan, vapor mounted primary seal, foam log secondary seal.

b. Contents Type And Vapor Pressure: Associated with each tank ID, make an entry describing the type of contents and its vapor pressure at 100°F (38°C).

(1) Express vapor pressure with a precision of at least the nearest whole number, except that vapor pressures between 0.5 and 2.0 psi shall be listed with a precision no less than to the nearest tenth of a pound per square inch [or nearest 5 mm Hg increment]. For Example: Tank #15, mixing tank, maximum vapor pressure of 3 psi, occurs when mixing methanol and ethyl acetate.

(2) If the contents are heated with a heating device above 100° F, give the vapor pressure at the maximum temperature of storage. For Example: Tank#5, heated cutback asphalt, vapor pressure of 1.7 psi at maximum stored temperature of 160° F.

(3) If the contents are continuously chilled by an automated temperature control system such that the contents can never reach 100°F, make an entry of the vapor pressure of the contents at the maximum temperature ever encountered. Example: Tank X66A, mechanically refrigerated,

vapor pressure of ethanol contents at maximum temperature of 65°F is 0.7 psi.

501.2 Records of Required Tank Inspections: For each required inspection, record the date(s), the time of the inspection to the nearest hour(s), the name(s) of the responsible party, and the name(s) of the inspecting persons. One person's name alone is adequate if that person takes full responsibility for the proper recording and representation of the inspection results. Recording the name of any County Control Officer present during the inspection is optional.

501.3

a. EFR Tank Inspection *Results*– 1st Half of the Year: Record the results of the required first-half inspection in a log *or hardcopy spreadsheet* designated for that purpose,

(1) show the average secondary seal gap area, and indicate the location on a circle diagram or similar any gaps discovered greater than 0.5 inch, using due North as the zero or 12 o'clock position.

(2) Also, note the location of every perforation through the outer layer *of the secondary rim-seal fabric or sheet metal*, such as tears, holes, and cracks. In addition, note the location of OTHER cracks that APPEAR TO penetrate beyond ½ the thickness of the outer layer*. Remark on the general condition.*

(3) Record the results of the partial primary inspection required by §505.5, making notations of numerical ranking regarding seal condition, and the location of any gaps that can admit the 2x4 shaft probe.

THE FOLLOWING 3 SUBSECTIONS NEED TO BE FLESHED OUT PER INSPECTION REQUIREMENTS IN SUBSECTION 505.

b. Other EFR Annual Result: SEE subsection 505.2

c. EFR Tank 5-Year Inspection Results: See subsection 505.3.

d. EFR Tank 10-year Inspection Results: See subsection 505.4

501.4 IFR Tank Reports:

a. IFR Tank Inspections – 1st Half of the Year: Record the results of required first half visual inspection of the rim-seal in a log designated for that purpose, showing the places on the perimeter where gaps in the seal appear to be greater than 0.5 inch or where product/contents are visible, and indicate the location on a circle diagram or similar any gaps discovered greater than 0.5 inch, using due North as the zero or 12 o'clock position. Indicate the sectors of the seal that could not be seen from the viewing position.

b. Report re. the annual IFR inspection: The Control Officer shall be notified in writing of readings EXCEEDING EITHER 10,000 ppmv or 20% LEL, and repairs shall be made such that there is no vapor concentration reading higher 2000 ppmv when tested in the original place within a week of completion of repairs.

c. IFR Tank 5th Year and 10th Year Inspections: If the inspection is performed while the tank has liquid contents, *record* the results of *doing* the inspection elements that are required by the American Petroleum Institute. .

501.5 Keep documentation in hardcopy for periods where the floating roof/pan of a tank containing VOL is set on its legs so that the underside of the pan/roof is not in full contact with the liquid.

502 COMPLIANCE DETERMINATION - TEST METHODS: When more than one test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule. The Control Officer, at any time, may check a vapor collection/processing system for vapor leaks by the methods described in subsection 503.5 of this rule or by applicable EPA Reference Methods specified in Section 503.

502.1 Emission Control System:

a. Capture Efficiency: Capture efficiency of an emission control device used to meet the requirements of Section 302, Section 303, or Section 304 shall be determined by mass balance in combination with ventilation/draft rate determinations done in accordance with subsection 503.x, or by US EPA Test Methods 204, 204a, 204b, 204c, 204d, 204e, and 204f,

b. Control efficiency of vapor recovery systems and vapor collection/processing systems shall be determined according to EPA Method 2A and either EPA Method 25A or 25B. EPA Method 2B also shall be used for vapor incineration devices. When the concentration of non-precursor organic compounds is to be determined, EPA TEST Method 18 shall be used.

502.2 Ventilation/draft rates: Ventilation and draft rates shall be determined by EPA Methods 2, 2a, 2c, and 2d.

502.3 Gaseous Leak Detection And Determination Of Gas-Tight Condition: Leak tests to verify a gas-tight state of the equipment associated with an emission control system, including the piping outside of the loading area, shall be conducted according to EPA Reference Method 21, cited in §503.1c, except that the leak threshold shall be 1000 ppmv above background.

502.4 Vapor Pressure

a. Total vapor pressure

(1) Pure liquids: Total vapor pressure of pure liquids (i.e., of a single chemical species) shall be determined by ASTM Method D2879-97 (reference subsection 503.4d).

(2) Petroleum Liquids: The total vapor pressure of non-gasoline VOLs derived from petroleum shall be determined by ASTM Method D5191-99 (reference subsection 503.4c).

b. Vapor Pressure Of Gasoline

(1) Vapor-pressure of non-oxygenated gasoline and of gasoline with MTBE and no other oxygenates shall be determined by ASTM Method D323 (reference subsection 503.4a).

(2) Vapor-pressure of oxygenated gasoline shall be determined by ASTM Method D4953-93 (reference subsection 503.4b).

502.5 Percent VOC-content: Percent of VOC in a material that is not gasoline nor another petroleum product shall be determined either by SCAQMD Method 313 (reference §503.3) or by BAAQMD Method 31 (reference §503.2).

502.5 Railcar Vapor-tightness: Railcar vapor tightness shall be determined by EPA Test Method 27, specified in §503.1.

503 Test Methods Adopted by Reference: The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 1999), as listed below, are adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version/revision of the method that is adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 503 are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, AZ, 85004-1942.

503.1 EPA Methods

- **a.** EPA Methods 2 ("Determination of Stack Gas Velocity and Volumetric Flow Rate"), 2a ("Direct Measurement of Gas Volume Through Pipes and Small Ducts"), 2c ("Determination of Stack Gas Velocity and Volumetric Flow rate in Small Stacks or Ducts"), and 2d ("Measurement of Gas volumetric Flow Rates in Small Pipes and Ducts"). All 4 of the foregoing methods are in 40 CFR 60, Appendix A.
- **b.** EPA Method 18 ("Measurement of Gaseous Organic Compound Emissions by Gas Chromatography") and its submethods (40 CFR 60, Appendix A).
- **c.** EPA Reference Method 21 (40 CFR 63.423) ("Determination of Volatile Organic Compounds Leaks").
- **d.** EPA Method 25 ("Determination of Total Gaseous Nonmethane Organic Emissions as Carbon") and its submethods (40 CFR 60, Appendix A).
- **e.** EPA Test Methods 204 ("Criteria For and Verification Of a Permanent or Temporary Total Enclosure"), 204a, 204b, 204c, 204d, 204e, and 204f (Appendix M, 40 CFR 51).
- **f.** EPA Method 27 ("Determination Of Vapor Tightness Of Gasoline Delivery Tank Using Pressure-Vacuum Test") in 40 CFR 60, Appendix A

503.2 California's Bay Area Air Quality Management District (BAAQMD) Method 31 (April 15, 1992), "Determination of Volatile Organic Compounds in Paint Strippers, Solvent Cleaners, and Low Solids Coatings".

503.3 California's South Coast Air Quality Management District (SCAQMD) Method 313-91 (April 1997) {title yet unfound}.

503.4 Vapor Pressure:

- **a**. American Society for Testing and Materials (ASTM) Method D323-94 (1994) "Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)".
- **b.** American Society for Testing and Materials (ASTM) Method D4953-93 (1993) "Standard Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method)".
- **c** American Society for Testing and Materials (ASTM) Method D5191-99 (1999) "Standard Test Method for Vapor Pressure of Petroleum Products (Mini Method)".
- **d.** American Society for Testing and Materials (ASTM) Method D2879-97 (1997) "Standard Test Method for Vapor Pressure - Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope".

503.5 Leak Detection - Test Procedure For Determining The Vapor Tightness Of Storage Tanks: ~~The peripheries of~~ *When* potential sources of *vapor escape at a bulk VOL storage facility* are checked with a combustible gas detector or organic vapor analyzer (OVA) *the following shall apply*:

~~**a. Calibration:** Within 4 hours prior to monitoring with a combustible gas detector (CGD) or organic vapor analyzer (OVA), that instrument shall be calibrated with methane at 10,000 ppm by volume. A CGD may alternatively be calibrated according to manufacturer's instructions to 20% of the lower explosive limit using a calibration gas specified by the manufacturer.~~

a. Calibration: Unless the Control Officer or Division Manager give written exception, the following shall apply:

(1) Within 4 hours prior to monitoring, the CGD or OVA shall be calibrated.

(2) The span gas concentration shall be within 10% of the applicable threshold. For example, 10,000 ppm methane is the OVA threshold for vapor tightness. The span gas must have a concentration somewhere between 9000 and 11,000 ppm by volume.

(3) Alternatively, an instrument that has been calibrated more than 4 hours previous to a gas-tight or vapor-tight determination by an instrument vendor (e.g., who doesn't permit leasees to recalibrate the leased instrument) may be continued in use if it is checked with a zero gas and a span gas within the 4 hours previous to use and all the following are true:

a) The concentration of the calibration span-gas is between 45% and 220% of the threshold limit value. (For example, if vapor tightness is being determined with a CGD calibrated with propane [propane has an LEL of 21,200 ppm], the threshold limit of 20% of LEL is 4,240 ppm, and – therefore – the calibration span-gas must be no less than 1908 ppm [=0.45 x 4,240] propane and no more than 9328 ppm propane); AND

b) The reading of both the zero point and the reading of the span point does not vary by more than 2.0% of full scale for both zero and the certified concentration of the span gas with the instrument set in the range most optimal for the determination; AND

c) The following are recorded prior to instrument use and retained as permanent record:

i) time, date, operator's name, and instrument ID number.

ii) certified ppm of the span gas

iii) actual zero reading and actual span reading of the instrument.

b. Background concentration: Make a reading of the ambient air upwind, 40-50 feet – if accessible - from the nearest point being checked for vapor escape:

(1) Within 5 minutes prior to commencing vapor-escape search

(2) Within 5 minutes after ceasing vapor-escape search
(3) If time permits, within one minute of detecting a reading exceeding 20% LEL or 10,000 ppm as methane.

c. Probe Distance: The probe inlet shall be one inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be one inch (2.5 cm) from the leak source when the highest detector reading is being determined for a discovered leak. When the probe is obstructed from moving within one inch (2.5 cm) of an actual or potential leak source, the closest practicable probe distance shall be used.

d. Probe Movement: The probe shall be moved slowly, not faster than 1.6 inches per second (4 centimeters per second). If there is any meter deflection in the locale of a potential vapor source, the probe shall be positioned to locate the point of highest meter response as indicated in subsection e, "probe position" that follows next.

e. Probe Position: The probe inlet shall be positioned in the path of the vapor flow from a VOC escape . To the degree a trained tester can attain it in 5 seconds, the tester shall position the central axis of the probe-tube inlet coaxially with the path of the most concentrated vapors.

f. Wind: Wind shall be blocked as much as possible from the space being monitored. The annual leak detection test required of an owner or operator pursuant to§309.1, shall be valid only when wind speed in the space being monitored is 5 mph or less. If an owner/operator is having the test done to meet a requirement of this rule, the test is not valid during times when the wind exceeds 20 miles per hour (29.0 feet per second) (9.0 meters per second).

g. Data Recording: Record the highest detector reading and location for each location where the highest detector reading exceeds 2% LEL (or 1000 ppm as methane). If the exact point of origin of an escape was not determined, describe the area/space that produced the highest reading. Also, record the date and time. If no organic vapor is detected, that fact shall be entered into the record along with a summary (or specific) description of the major structures/elements that were tested for vapor escape. If there was indicator deflection/reading-increase but no reading exceeded 2% LEL (or 1000 ppm) enter a description of at least 1 location of 1 deflection/reading increase.

503.6 Orientation and Dimension Of Probe-tip At Degassing Operation: When monitoring VOC-vapor concentration within a storage tank pursuant to subsection 309.3 of this rule, the probe (or the wand to which it is attached) shall be of a rigid material. The probe tip shall be positioned as follows:

a. At least 3 feet distant from the interior wall of the tank
b. Positioned 9 to 15 vertical inches from the surface below it, (sludge or tank); and
c. At least 30 horizontal degrees away from all possible radii that terminate at the sides of the active opening through which the probe enters the tank's interior. For example, 45 degrees away from the immediate inner wall.
d. The probe tip shall not be deliberately repositioned but shall as nearly as is practical be put in the same general locus for each reading.

e. All readings within a 15 minute period must be below the standard of discontinuance, and there must be at least 4 readings; no consecutive 2 of which shall be more than 5.5 minutes apart.

503.7 Use Of Detector In Suspected AVEC Situation: When in the course of using vapor escape detection equipment on the same tank, pipe system, and/or other contiguous VOC-containment, several **p**otentially **a**ctionable **v**apor-**e**scapes (PAVEs) are discovered (i.e., that register between 10% and 19.9% LEL {or 5,000 to 9,999 ppm on an OVA}) and the Control Office or owner/operator decides to ascertain if an AVEC is present, the shortest distance along the surface between PAVEs shall be measured. If 6 or more PAVEs are found, each of which is no more than 20 feet from another PAVE, this constitutes a **presumptive** Actionable Vapor Escape Cluster. An AVEC exists if a second set of readings of the vapor-escapes within the presumptive AVEC, all performed within one 30 minute period, show 10% LEL (5000 ppm) or higher.

EXAMPLE #1: Probing of a rusty tank surface reveals 9 PAVEs each of which is within 20 feet of another PAVE. When measurements of the escapes are repeated, a task that takes 17 minutes, only 6 of them have LEL readings of 10% or more. However, all 6 of these active PAVEs are within 20 feet of another. Therefore, these 6 escapes constitute an AVEC.

EXAMPLE #2: A run of pipe has 8 couplings (at 10 foot intervals) with a vapor-escape from each coupling. The CGD readings at 6 of the couplings are between 11 and 19 percent of LEL. *The results are the same a few minutes later.* A coupling at the end of the pipe run and a coupling in the middle have readings less than 10% of LEL. This is an **AVEC** because there are 6 qualifying readings and no more than 20 feet separates 2 adjacent qualifying vapor-escapes.

504 DETECTING VAPOR LEAKS ON HORIZONTAL & FIXED ROOF TANKS: An owner or operator may choose one or more of the follow detection methods to test for vapor leaks from non-FR fixed roof tanks:

504.1 Fill With Liquid: If not otherwise prohibited, fill the tank to the highest safe level with dyed water or with #1 or #2 fuel and check for visible leaks.

504.2 Use Bubbly Solution: Spread a liquid bubbly detector across the top and the upper sides of the tank above the liquid-contents. Detection shall be done with the tank in sunlight (i.e., not in a cloud shadow), before 3 PM, with the tank's interior temperature increasing or under another condition that increases the vapors' pressure within the tank. The detection solution must be initially warm enough and the wind slack enough that the solution does not lower the temperature of the tank skin by conduction or evaporative cooling. This method is not workable in very hot weather if the detection liquid dries too quickly.

504.3 Use a CGD or OVA: Use an OVA or CGD as the detector on all seams and machined openings (such as for the p/v valve or a man-way hatch), deploying the detector per §503.5.

504.4 Use A Combination Of Methods: An owner or operator can use any combination of the foregoing methods, so long as all seams and openings are tested.

505 INSPECTING EXTERNAL FLOATING ROOF TANKS

505.1 Mandatory Annual Partial Inspection of Each Tank's Primary Seal:

a. Once a year pursuant to subsection 402.1, whether or not the Control Officer has specifically ordered it, the owner/operator shall fully expose the top of the primary seal of each subject tank in at least 5 places according to §505.5, and measure the width of the largest gap at each exposure,

b. The previous subsection notwithstanding, once each year for each subject EFR tank the Control Officer may require that the following procedure be performed in the Officer's presence at the time the Control Officer specifies, if discussion for a mutually agreed time fails: The Control Officer shall select at least 4 locations along the perimeter for measurements to be made. If the gaps are sufficiently large as to make a violation a clear possibility, the Control officer may require such further unobstructed inspection of the seals as may be necessary to determine the seal condition, for its entire circumference if judged necessary.

c. If procedures in subsection ~~402.1~~ 406 are satisfied, the requirements of the previous 2 subsections, **a** and **b,** can be met at the same time.

505.2 Mandatory Periodic Inspection of the EFR Tank Secondary Seal:

a. Annual Inspection With Gap Determination: Both at the onset of use of a newly installed seal and each calendar year prior to June, the owner/operator shall have the area of the secondary seal gaps determined for the seal's full perimeter for each tank containing gasoline or other VOL. A permanent record shall be made of the findings.

b. Annual Fall Inspection: During the second half of each calendar year but at least 5 months after the gap measurement of the first half of the year, the owner/operator shall **visually** inspect the secondary seal of each tank containing gasoline or other VOL around its full perimeter and record its condition including tears, holes, and serious abrasion. The inspector shall note in the record the approximate location of each gap that appears to be larger than ½ inch wide.

505.3 5-Year, Complete *EFR* Primary Seal Inspections: Every 60 months, the owner/operator of a subject EFR tank shall:

a. Entirely remove or push aside the secondary seal so that every place along of the top of the primary seal envelope is successively viewable within a 60 minute period; and

b. At that time perform a complete inspection of the primary seal and floating roof, including measurement of gap area and maximum gap; and

c. Advance notification shall be given in accordance with Section 401. The owner/operator shall provide access such that the Control Officer is enabled to observe all phases of one complete cycle of gap measurement around the entire perimeter.

505.4 10-year Inspection *Of EFR Tank*: No less than every 10 years (120 months), the owner/operator of an external floating roof tank shall clean out the tank

and make a complete inspection of rim- and all other required seals from above and from beneath, giving notice per Section 401.

505.5 Operator-Initiated Partial Primary Inspection *On EFR Tank*: Per §402.1, in the first half of each calendar year, the owner operator shall loosen, remove, or otherwise open up a space along a segment of the secondary seal, in 5 places to inspect the primary seal.

a. At least one such space each shall be opened in the second, third and fourth quadrants with due east, due south, and due west as the respective midpoints of these 3 quadrants.

b. At least 2 such spaces shall be opened up in the first quadrant (having due north as the midpoint of its segment).

c. None of these 5 required access-openings shall be closer than 45° from any other such opening.

d. The owner/operator is allowed to omit such inspection of the 3rd quadrant every even numbered year.

e. A numerical ranking shall be made along a continuum of 1-5 for each exposed sector of the primary seal regarding its condition and recorded according to subsection 501.2.

(1) "1" shall denote (nearly) perfect and "5" – badly deteriorated or missing.

(2) Gauge any wide gaps by gently attempting to vertically insert a shaft-shaped probe of non-absorbent material having a 1 9/16 x 3 ½ inch cross section (the dimensions of a standard "2x4" board). Make a notation in the record of all gaps that freely admit the probe, per §*501.2a* .

505.6 Slotted Guidepoles:

a. By June 13, 2002, the guidepole and guidepole-well through an external floating roof shall *either* be equipped according to the provisions of *one of the following* subsections **(1)** *through (6)* and/or USEPA STERRP Appendix I (Federal Register: April 13, 2000 (Volume 65, Number 72) *or an agreement shall have been signed with EPA pursuant to §402.4*:

(1) Pole Float system: Each opening through the deck of the floating roof for a slotted guide pole hall be equipped with a deck cover, a pole wiper and a pole float. The deck cover shall also be equipped with a gasket between the cover and deck. The wiper or seal of the pole float shall be at or above the height of the pole wiper. designed to minimize the gap between the float and the well, provided that the gap shall in no case exceed 1/2 in., or

(2) Pole Sleeve System: Each opening through the deck of the floating roof for a slotted guide pole shall be equipped with a deck cover, a pole wiper and a pole sleeve. The deck cover shall be equipped with a gasket between the cover and the deck. The sleeve extends into the stored liquid.

(3) A well gasket, a zero-gap pole-wiper-seal, and a pole-sleeve that projects below the liquid surface. Each opening through the deck *that admits the* slotted guidepole shall have its lower edge below the surface of the stored liquid.

(4) Covers on External Floating Roof Tanks: the external floating roof tank shall be (or have been) modified by *newly* installing a fixed roof. or rigid cover, spanning rim to rim (such as a geodesic dome), that excludes precipitation and most wind and sunlight.

(5) Internal Sleeve Emission Control System:

(6) Flexible Enclosure system:

506 Requirements For The Inspection And Maintenance Of Internal Floating Roof Tanks

506.1 Semi-Annual Inspection ~~And Annual Inspection Equivalents~~: Each year ~~inspect~~ the owner/operator shall have rim seals of IFR tanks subject to this rule inspected 2 times. ~~as follows:~~

a. Use visual means including spotlighting and binoculars for both inspections.

b. Conduct the first inspection prior to June, using a CGD or OVA per subsection ~~403.2.~~506.2 in addition to the visual inspection. Optionally, the inspection with vapor detector may be done before June at a separate time from the visual inspection.

506.2 Annual IFR Tank Test For Vapor Intrusion:

a. In the annual test for vapor leakage through the floating roof/pan assembly required by §~~403.3~~307 as augmented by §403, the operator shall test using a vapor detector adequately designed for the purpose, and having appropriate range and calibration.

b. The probe-tip of the vapor detector shall be positioned at or below a plane that is at least 4 vertical feet (1.2 M) lower than the lowest opening on the wall of the tank. If the lowest opening is less than 4 feet above the top of the pan/roof, the probe tip shall be positioned as close to the pan as is practical.

506.3 5-Year, Complete Primary Seal Inspections *On IFR Tanks*: Every 60 months, the owner/operator of a subject IFR tank shall:

(1) Entirely remove or push aside the secondary seal so that every place along of the top of the primary seal envelope is successively viewable; and

(2) At that time perform a complete inspection of the primary seal and floating roof, including measurement of gap area and maximum gap; and

(3) Advance notification shall be given in accordance with Section 400. The owner/operator shall provide access such that the Control Officer is enabled to observe all phases of one complete cycle of gap measurement around the entire perimeter.

(4) The 5-year inspection is waived if §403.4d requirements are met.

506.4 10-year Inspection *Of IFR Tank*: No less than every 10 years (120 months), the owner/operator of an internal floating roof tank shall clean out the tank and make a complete inspection of rim- and all other required seals from above and from beneath, giving notice per Section 400.